PROJECT NUMBER: 0400
PROJECT TITLE: Low Density Rod Development
PROJECT LEADER: R. S. Mullins
PERIOD COVERED: April, 1988

LOW DENSITY ROD

A. **Objective**: Develop a continuous process for the production of reduced density cigarettes.

B. **Results**: Relocation of the vacuum pump to D125 was completed. The addition of the second pump appears to have significantly improved the performance of the tipper at higher speeds. Prior to the addition of the second pump, tipping performance would begin to deteriorate at a speed of about 1250 cpm because the vacuum was not sufficient to hold the components securely on the drums at that speed. Following the relocation, the maker and tipper were operated at a speed of 2000 cpm. A five minute run was made during which cigarettes were made at a weight reduction of 25% (800 mg total weight) and an OV of 13% to 14%. The run was stopped by a jam on the tipper rolling drum. The maker is being set up to operate at a speed of 1000 cpm for normal sample production as this is the highest speed at which the wrapped rod can consistently be manually started through the cutter head.

Two baseline runs were made to evaluate the effect of binder solution concentration (2% vs 6%) on cigarette quality using cased all-lamina filler. This cased filler ran very well, producing some of the best cigarettes that have been made in the low density process. However, as had been seen on previous runs using uncased filler, the material coated with the 6% concentration solution appeared to produce lower quality cigarettes than that coated with the normal 2% concentration even though the binder addition level was the same for both fillers (6% by weight). Four additional runs will be made to provide enough data to allow the effect of the binder concentration on the performance of the cased filler to be statistically evaluated.

Production of cigarettes for both the CV/OV/Size test and the preliminary casing evaluation were completed and samples submitted for testing. Both physical and analytical data from the Product Designs Study has been received and is being analyzed.

C. **Plans**: Continue investigating the effect of binder solution concentration on the physical quality of low density cigarettes. Continue preliminary evaluations of binder application to filler at the maker. Analyze the results of the Product Designs Study, the preliminary casing evaluation, and the CV/OV/Size test.